Roy F Weston, Inc
Suite 5700
700 5th Avenue
Seattle, Washington 98104-5057
206-521-7600 • Fax 206-521-7601

MEMORANDUM

DATE 4 November 1998

TO. David Bennett, WAM, U.S EPA, Region X

FROM: RM Roger McGinnis, Senior Environmental Chemist, WESTON, Seattle

SUBJECT Validation of Grainsize Data
Laboratory Batch 1001-007-18
Site. Duwamish River

WORK ASSIGNMENT NO.: 46-23-0JZZ

WORK ORDER NO.· 4000-019-038-5200-00

DOC. CONTROL NO . 4000-019-038-AAAK

cc: Bruce Woods, RAP-WAM, U.S EPA, Region X
Dena Hughes, Site Manager, WESTON, Seattle
Kevin Mundell-Jackson, Database Management, WESTON, Seattle

The quality assurance review of 11 sediment samples, laboratory batch 1001-007-18, collected from the Duwamish River has been completed The sediment samples were analyzed for grainsize by Rosa Environmental using the PSEP modification to ASTM Method 422. The samples were numbered

98394024	98394027	98394029	98394031	98394033
98394025	98394028	98394030	98394032	98394034
98394026				

Data Qualifications

The following comments refer to the laboratory performance in meeting the quality control criteria described in the technical specifications of the laboratory subcontract

1 Sample Holding Times—Acceptable

All samples were cooled with ice or refrigerated from the time of collection until analysis. A maximum holding time of six months was specified in the Duwamish River Sampling and Analysis Plan All grainsize analyses were performed within 16 days of sample collection.

2. Laboratory Triplicate Analysis—Acceptable

Triplicate analysis was performed on sample 98394024 The laboratory triplicate percent relative standard deviation was within quality control limits of less than 25 percent for all fractions.

3. Field Duplicate Analysis—Acceptable

Samples 98394028 and 98394030 were field duplicates. The relative percent differences (RPDs) between duplicate measurements was within quality control limits of 35 percent for all fractions.

4 Sieve Sample Recovery

Combined sieve fraction weights were within limits of 80 to 120 percent compared to the initial dry sieve sample weight for all samples except

Sample	Percent Recovery
98394028	63 5
98394029	68 3
98394030	67 4
98394031	69 4
98394032	72 0
98394033	78 8

Results for the sand classes associated with the sample numbers listed above were qualified as estimated (J)

5 Pipette Sample Recovery

Sample size for pipette analysis of silt and clay fractions was within PSEP guidelines of 5 to 25 grams. Sample recoveries were within QC limits of 80 to 120 percent for all samples except:

Sample	Percent Recovery
98394027	125 6

Results for the silt and clay classes associated with the sample numbers listed above were qualified as estimated (J)

6. Total Sample Recovery

Total combined sample percent recovery (sieve and pipet) was within QC limits of 95 to 105 percent

7. Sample Analysis

All laboratory deliverables were present and complete No problems were noted

8 Laboratory Contact

No laboratory contact was required.

Data Assessment

Upon consideration of the data qualifications noted above, the data are ACCEPTABLE for use except where flagged with data qualifiers that modify the usefulness of the individual values.

Data Qualifiers

U - The compound was analyzed for, but was not detected

UJ - The compound was analyzed for, but was not detected. The associated quantitation limit is an estimate because quality control criteria were not met.

J - The analyte was positively identified, but the associated numerical value is an estimated quantity because quality control criteria were not met or because concentrations reported are less than the quantitation limit or lowest calibration standard

R - Quality control indicates that data are unusable (compound may or may not be present). Resampling and reanalysis are necessary for verification

Rosa Environmental Geotechnical Laboratory, LLC

Roy F Weston, Inc
Project No . 4000-027-001-2019-38

Apparent Grain Size Distribution Summary
Percent Finer Than Indicated Size

Sample No	Gravel			Very Coarse Sand	Coarse Sand	Medium Sand	Fine Sand	Very Fine Sand	Silt				Clay	
Phi Size	-3	-2	-1	0	1	2	3	4	5	6	7	8	9	10
Sieve Size (microns)	3/8"	#4	#10 (2000)	#18 (1000)	#35 (500)	#60 (250)	#120 (125)	#230 (62)	31 00	15.60	7 80	3.90	2 00	1.00
98394024	100 00	99 35	99.25	98 34	97 70	96.76	95 83	93 67	86.99	64.41	37 55	25.13	17.56	12 08
98394025	100 00	100 00	100 00	99 56	98.33	93.16	74 61	52 05	38 14	22 21	10 67	5 94	3.87	2 65
98394025(2)	100 00	100 00	100 00	99.61	98 32	92 93	74.23	52 24	37 93	22 14	10 15	5 28	3 14	2 69
98394025(3)	100 00	100 00	99 97	99 74	98 43	93 02	74.21	52 12	38 17	20 79	9.45	5 34	3 47	2 55
98394026	100 00	100 00	99 97	99 64	98 40	81 81	45 35	30 55	21.10	10 37	4 96	2 72	1 51	1 20
98394027	100 00	92 44	91.86	91.11	89 07	82 78	72.27	55 59	37 68 J	22.68 J	11 44 J	7 25 J	5 13 J	3 41 J
98394028	100 00	100 00	99 97 J	99.89 J	99 27 J	98 65 J	97 06 J	89 35 J	73 68	47 65	23 01	14 14	9 89	6.19
98394029	100 00	100 00	100 00	99 95 J	99 28 J	98 41 J	96.86 J	89.81 J	72 80	48.57	28 85	17 44	10.96	6 98
98394030	100 00	100 00	100 00	99.97 J	99 27 J	98 59 J	96 13 J	88 92 J	69.53	45 30	23 06	13.51	9.35	5 69
98394031	100 00	100 00	99 92 J	99.75 J	98 80 J	97 69 J	95.54 J	83 96 J	63 78	40.49	21 36	13 64	9 44	6 61
98394032	100 00	100 00	100 00	99 91 J	98 70 J	96 58 J	92 76 J	78 06 J	54 76	29 24	13.23	8 81	6 44	4 46
98394033	100 00	100 00	99 93 J	99 79 J	98 58 J	95 94 J	91 98 J	79 89 J	61 59	44.18	27 34	16 56	10 96	7.28
98394034	100 00	100 00	99 97	99.90	98 82	96 34	91 03	75 08	57 71	37.15	17 97	11 43	8 37	5.85

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10/27/98

Notes to the Testing

1 Apparent grain size distributions according to PSEP protocols